

SUBJECT:

Year: Month: Day:

پارچه دفتر 13

تالیف ۲۹

صفحه ۲۰ * Page: ()

الف) $\lim_{x \rightarrow 2^+} f(x-3) = f(2)-3 = 1-3 = -2$ ب) $\lim_{x \rightarrow 2^-} f(x-3) = f(2)-3 = 1-3 = -2$ ⑤ ①

الف) $\lim_{x \rightarrow 2^+} f[x]-3 = f[2^+]-3 = 1-3 = -2$ ب) $\lim_{x \rightarrow 2^-} f[x]-3 = f[2^-]-3 = 1-3 = -2$ ⑤ ②

الف) $\lim_{x \rightarrow 2^+} [f(x-3)] = [f(2^+)-3] = [1^+-3] = [0^+] = 0$ ب) $\lim_{x \rightarrow 2^-} [f(x-3)] = [f(2^-)-3] = [1^--3] = [0^-] = 0$ ⑤ ③

الف) $[\lim_{x \rightarrow 2^+} f(x-3)] = [f(2)-3] = [0] = 0$ ب) $[\lim_{x \rightarrow 2^-} f(x-3)] = [f(2)-3] = [0] = 0$ ⑤ ④

الف) $\lim_{x \rightarrow 3} \frac{f(x-3)}{x-3} = \frac{f(3)-3}{3-3} = \frac{9}{0}$ $\begin{matrix} 3^+ \rightarrow \frac{9}{0^+} = +\infty \\ 3^- \rightarrow \frac{9}{0^-} = -\infty \end{matrix}$ حد ندارد ⑤ ⑤

ب) $\lim_{x \rightarrow 3} \frac{f(x-3)}{(x-3)^2} = \frac{f(3)-3}{(3-3)^2} = \frac{9}{0}$ $\begin{matrix} 3^+ \rightarrow \frac{9}{0^+} = +\infty \\ 3^- \rightarrow \frac{9}{0^+} = +\infty \end{matrix}$ حد ندارد زیرا عددی در سمت مقدار صفت ندارد ⑤ ⑥

الف) $\lim_{x \rightarrow 3} \frac{f(x-3)}{\sqrt{x-3}} = \frac{f(3)-3}{\sqrt{3-3}} = \frac{9}{0}$ $\begin{matrix} 3^+ \rightarrow \frac{9}{\sqrt{0^+}} = \frac{9}{0^+} = +\infty \\ 3^- \rightarrow \frac{9}{\sqrt{0^-}} \end{matrix}$ حد ندارد ⑤ ⑦

ب) $\lim_{x \rightarrow 3} \frac{f(x-3)}{\sqrt{x^2-4x+3}} = \frac{f(3)-3}{\sqrt{9-12+3}} = \frac{9}{0}$ $\begin{matrix} 3^+ \rightarrow \frac{9}{\sqrt{0^+}} = \frac{9}{0^+} = +\infty \\ 3^- \rightarrow \frac{9}{\sqrt{0^-}} \end{matrix}$ حد ندارد ⑤ ⑧

الف) $\lim_{x \rightarrow 3} \frac{f(x-3)}{x^2-7x+12} = \frac{f(3)-3}{9-21+12} = \frac{9}{0}$ $\begin{matrix} 3^+ \rightarrow \frac{9}{0^-} = -\infty \\ 3^- \rightarrow \frac{9}{0^+} = +\infty \end{matrix}$ حد ندارد ⑤ ⑨



Genobar

ب) $\lim_{x \rightarrow 3} \frac{4x - 3}{x - 3} = \frac{4(3) - 3}{3 - 3} = \frac{9}{0}$

$\begin{cases} \xrightarrow{3^+} \frac{9}{[0^+]} = \frac{9}{0} = +\infty \\ \xrightarrow{3^-} \frac{9}{[0^-]} = \frac{9}{-0} = -\infty \end{cases} \Rightarrow$ حد ندارد

الف) $\lim_{x \rightarrow 3} [3x] + [-2x]$

$\begin{cases} \xrightarrow{3^+} [3(3^+)] + [-2(3^+)] = [9^+] + [-6^-] = 9 - 6 = 3 \\ \xrightarrow{3^-} [3(3^-)] + [-2(3^-)] = [9^-] + [-6^+] = 9 - 6 = 3 \end{cases}$

\rightarrow حد دارد = 3

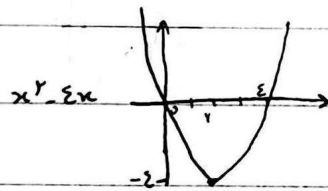
ب) $\lim_{x \rightarrow -4} [5x] + [2x]$

$\begin{cases} \xrightarrow{-4^+} [5(-4^+)] + [2(-4^+)] = 20^- - 8^+ = 11 \\ \xrightarrow{-4^-} [5(-4^-)] + [2(-4^-)] = 20^+ - 8^- = 11 \end{cases}$

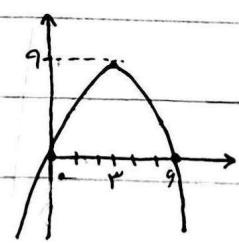
$\begin{cases} x > -4 & 2x - 4 < 2x \\ -4x < 2x & 2x > -12 \end{cases}$

\rightarrow حد دارد = 11

الف) $\lim_{x \rightarrow 2} [x^2 - 5x] \Rightarrow x = 2 \rightarrow \min$ \rightarrow حد ندارد $\rightarrow [-\infty^+] = -\infty$



ب) $\lim_{x \rightarrow 3} [4x - x^2]$ $\frac{b}{a} = \frac{-4}{1} = -4$ \rightarrow $\max_{x \in \mathbb{R}} = 4$ \rightarrow حد دارد $[4^-] = 4$



الف) $\lim_{x \rightarrow 2} \frac{|x-2|}{x^2 - 3x + 2}$

$\begin{cases} \xrightarrow{2^+} \frac{x-2}{(x-2)(x-1)} = \frac{1}{2-1} = 1 \\ \xrightarrow{2^-} \frac{2-x}{(x-2)(x-1)} = \frac{-(x-2)}{(x-2)(x-1)} = -\frac{1}{2-1} = -1 \end{cases}$

حد ندارد

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$$\lim_{x \rightarrow 1} \frac{x - [x]}{x^2 - 1} = \frac{0^{\sim}}{0^{\sim}}$$

$\xrightarrow{1^+} \frac{(x-1)}{(x+1)(x-1)} = \frac{1}{x+1} = \frac{1}{2}$

$\xrightarrow{1^-} \frac{x}{x^2 - 1} = \frac{1}{1^- - 1} = \frac{1}{0^-} = -\infty$

\rightarrow *محدود*